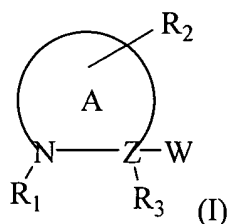


In the claims:

For the convenience of the Examiner, all claims being examined, whether or not amended, are presented below.

1. (Currently Amended) A method for ~~modifying~~ reducing the rate of ~~in an animal~~, metabolism of glucagon-like peptide 1 (GLP-1), comprising administering to ~~the an~~ an animal a composition including one or more inhibitors of a dipeptidylpeptidase IV ~~which inactivates GLP-1~~, wherein the inhibitor is represented by Formula I:

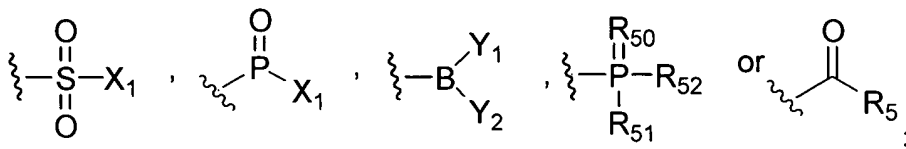


wherein

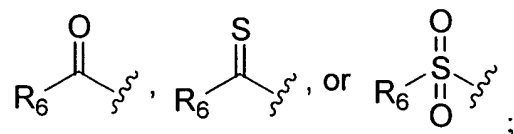
A represents a 4-8 membered heterocycle including the N and a C $\alpha$  carbon;

Z represents C or N;

W represents  $-\text{CH}=\text{NR}_5$ , ~~a functional group which reacts with an active site residue of the targeted protease, or~~



R<sub>1</sub> represents a C-terminally linked amino acid residue or amino acid analog, or a C- terminally linked peptide or peptide analog, or an amino-protecting group, or



R<sub>2</sub> is absent or represents one or more substitutions to the ring A, each of which can

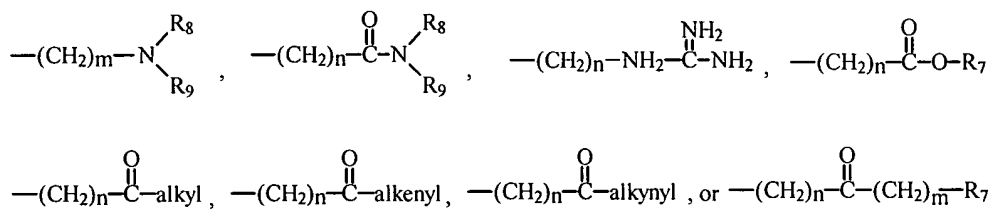
independently be a halogen, a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl, a

thiocarbonyl, an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido,  $-(CH_2)_m-R_7$ ,  $-(CH_2)_m-OH$ ,  $-(CH_2)_m-O$ -lower alkyl,  $-(CH_2)_m-O$ -lower alkenyl,  $-(CH_2)_n-O-(CH_2)_m-R_7$ ,  $-(CH_2)_m-SH$ ,  $-(CH_2)_m-S$ -lower alkyl,  $-(CH_2)_m-S$ -lower alkenyl, or  $-(CH_2)_n-S-(CH_2)_m-R_7$ ;

if Z is N,  $R_3$  represents hydrogen, if Z is C,  $R_3$  represents hydrogen or a halogen, a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl, a thiocarbonyl, an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido,  $-(CH_2)_m-R_7$ ,  $-(CH_2)_m-OH$ ,  $-(CH_2)_m-O$ -lower alkyl,  $-(CH_2)_m-O$ -lower alkenyl,  $-(CH_2)_n-O-(CH_2)_m-R_7$ ,  $-(CH_2)_m-SH$ ,  $-(CH_2)_m-S$ -lower alkyl,  $-(CH_2)_m-S$ -lower alkenyl, or  $-(CH_2)_n-S-(CH_2)_m-R_7$ ;

$R_5$  represents a hydrogen, an alkyl, an alkenyl, an alkynyl,  $-C(X_1)(X_2)X_3$ ,  $-(CH_2)_m-R_7$ ,  $-(CH_2)_n-OH$ ,  $-(CH_2)_n-O$ -alkyl,  $-(CH_2)_n-O$ -alkenyl,  $-(CH_2)_n-O$ -alkynyl,  $-(CH_2)_n-O-(CH_2)_m-R_7$ ,  $-(CH_2)_n-SH$ ,  $-(CH_2)_n-S$ -alkyl,  $-(CH_2)_n-S$ -alkenyl,  $-(CH_2)_n-S$ -alkynyl,  $-(CH_2)_n-S-(CH_2)_m-R_7$ ,  $-C(O)C(O)NH_2$ , or  $-C(O)C(O)OR_7$ ;

$R_6$  represents hydrogen, a halogen, ~~an~~ an alkyl, ~~an~~ an alkenyl, ~~an~~ an alkynyl, an aryl,  $-(CH_2)_m-R_7$ ,  $-(CH_2)_m-OH$ ,  $-(CH_2)_m-O$ -alkyl,  $-(CH_2)_m-O$ -alkenyl,  $-(CH_2)_m-O$ -alkynyl,  $-(CH_2)_m-O-(CH_2)_m-R_7$ ,  $-(CH_2)_m-SH$ ,  $-(CH_2)_m-S$ -alkyl,  $-(CH_2)_m-S$ -alkenyl,  $-(CH_2)_m-S$ -alkynyl, ~~or~~ or  $-(CH_2)_m-S-(CH_2)_m-R_7$ ,



$R_7$  represents, for each occurrence, a substituted or unsubstituted aryl, aralkyl, cycloalkyl, cycloalkenyl, or heterocycle;

$R'_7$  represents, for each occurrence, hydrogen, or a substituted or unsubstituted alkyl, alkenyl, aryl, aralkyl, cycloalkyl, cycloalkenyl or heterocyclyl;

R<sub>8</sub> and R<sub>9</sub> each independently represent hydrogen, alkyl, alkenyl, -(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -C(=O)-alkyl, -C(=O)-alkenyl, -C(=O)-alkynyl, or -C(=O)-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>,

or R<sub>8</sub> and R<sub>9</sub> taken together with the N atom to which they are attached complete a heterocyclic ring having from 4 to 8 atoms in the ring structure;

R<sub>50</sub> represents O or S;

R<sub>51</sub> represents N<sub>3</sub>, SH, NH<sub>2</sub>, NO<sub>2</sub> or OR'<sub>7</sub>;

R<sub>52</sub> represents hydrogen, a lower alkyl, an amine, OR'<sub>7</sub>, or a pharmaceutically acceptable salt, or R<sub>51</sub> and R<sub>52</sub> taken together with the phosphorous atom to which they are attached complete a heterocyclic ring having from 5 to 8 atoms in the ring structure;

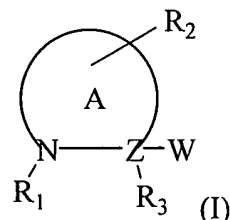
Y<sub>1</sub> and Y<sub>2</sub> can independently or together be a group capable of being hydrolyzed to a hydroxyl group, or cyclic derivatives where Y<sub>1</sub> and Y<sub>2</sub> are connected via a ring having from 5 to 8 atoms in the ring structure;

X<sub>1</sub> represents a halogen;

X<sub>2</sub> and X<sub>3</sub> each represent a hydrogen or a halogen;

m is zero or an integer in the range of 1 to 8; and n is an integer in the range of 1 to 8.

2. (Currently Amended) A method for ~~modifying~~ improving glucose ~~metabolism of an animal~~ tolerance, comprising administering to ~~the an~~ an animal a composition including one or more protease inhibitors which inhibit ~~DPIV-mediated proteolysis~~ dipeptidylpeptidase IV, wherein the inhibitor is represented by Formula I:

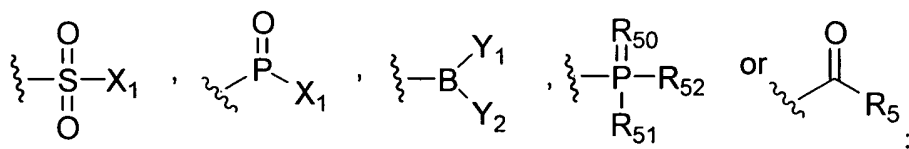


wherein

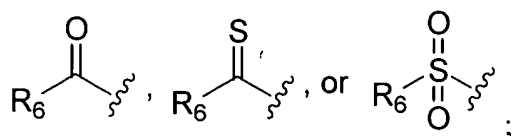
A represents a 4-8 membered heterocycle including the N and a C $\alpha$  carbon;

Z represents C or N;

W represents  $-\text{CH}=\text{NR}_5$ ,



R<sub>1</sub> represents a C-terminally linked amino acid residue or amino acid analog, or a C-terminally linked peptide or peptide analog, or an amino-protecting group, or



R<sub>2</sub> is absent or represents one or more substitutions to the ring A, each of which can

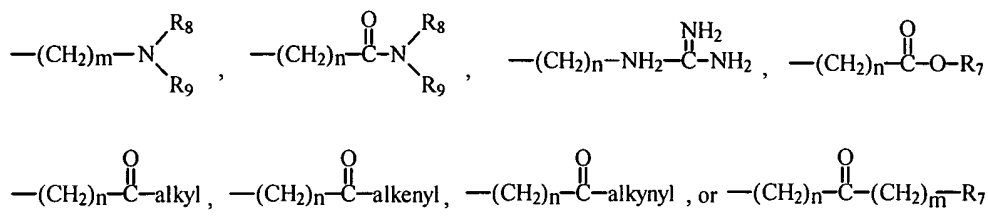
independently be a halogen, a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl, a thiocarbonyl, an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido,  $-(\text{CH}_2)_m\text{-R}_7$ ,  $-(\text{CH}_2)_m\text{-OH}$ ,  $-(\text{CH}_2)_m\text{-O-lower alkyl}$ ,  $-(\text{CH}_2)_m\text{-O-lower alkenyl}$ ,  $-(\text{CH}_2)_n\text{-O}-(\text{CH}_2)_m\text{-R}_7$ ,  $-(\text{CH}_2)_m\text{-SH}$ ,  $-(\text{CH}_2)_m\text{-S-lower alkyl}$ ,  $-(\text{CH}_2)_m\text{-S-lower alkenyl}$ , or  $-(\text{CH}_2)_n\text{-S}-(\text{CH}_2)_m\text{-R}_7$ ;

if Z is N,  $\text{R}_3$  represents hydrogen, if Z is C,  $\text{R}_3$  represents hydrogen or a halogen, a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl, a thiocarbonyl, an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido,  $-(\text{CH}_2)_m\text{-R}_7$ ,  $-(\text{CH}_2)_m\text{-OH}$ ,  $-(\text{CH}_2)_m\text{-O-lower alkyl}$ ,  $-(\text{CH}_2)_m\text{-O-lower alkenyl}$ ,  $-(\text{CH}_2)_n\text{-O}-(\text{CH}_2)_m\text{-R}_7$ ,  $-(\text{CH}_2)_m\text{-SH}$ ,  $-(\text{CH}_2)_m\text{-S-lower alkyl}$ ,  $-(\text{CH}_2)_m\text{-S-lower alkenyl}$ , or  $-(\text{CH}_2)_n\text{-S}-(\text{CH}_2)_m\text{-R}_7$ ;

$\text{R}_5$  represents a hydrogen, an alkyl, an alkenyl, an alkynyl,  $-\text{C}(\text{X}_1)(\text{X}_2)\text{X}_3$ ,  $-(\text{CH}_2)_m\text{-R}_7$ ,  $-(\text{CH}_2)_n\text{-OH}$ ,  $-(\text{CH}_2)_n\text{-O-alkyl}$ ,  $-(\text{CH}_2)_n\text{-O-alkenyl}$ ,  $-(\text{CH}_2)_n\text{-O-alkynyl}$ ,  $-(\text{CH}_2)_n\text{-O}-(\text{CH}_2)_m\text{-R}_7$ ,  $-(\text{CH}_2)_n\text{-SH}$ ,  $-(\text{CH}_2)_n\text{-S-alkyl}$ ,  $-(\text{CH}_2)_n\text{-S-alkenyl}$ ,  $-(\text{CH}_2)_n\text{-S-alkynyl}$ ,  $-(\text{CH}_2)_n\text{-S}-(\text{CH}_2)_m\text{-R}_7$ ,  $-\text{C}(\text{O})\text{C}(\text{O})\text{NH}_2$ , or  $-\text{C}(\text{O})\text{C}(\text{O})\text{OR}'_7$ ;

$\text{R}_6$  represents hydrogen, a halogen, an alkyl, an alkenyl, an alkynyl, an aryl,  $-(\text{CH}_2)_m\text{-R}_7$ ,  $-(\text{CH}_2)_m\text{-OH}$ ,  $-(\text{CH}_2)_m\text{-O-alkyl}$ ,  $-(\text{CH}_2)_m\text{-O-alkenyl}$ ,  $-(\text{CH}_2)_m\text{-O-alkynyl}$ ,  $-(\text{CH}_2)_m\text{-O}$

$(CH_2)_m-R_7$ ,  $-(CH_2)_m-SH$ ,  $-(CH_2)_m-S-alkyl$ ,  $-(CH_2)_m-S-alkenyl$ ,  $-(CH_2)_m-S-alkynyl$ ,  
or  $-(CH_2)_m-S-(CH_2)_m-R_7$ .



$R_7$  represents, for each occurrence, a substituted or unsubstituted aryl, aralkyl, cycloalkyl,  
cycloalkenyl, or heterocycle;

$R'_7$  represents, for each occurrence, hydrogen, or a substituted or unsubstituted alkyl, alkenyl,  
aryl, aralkyl, cycloalkyl, cycloalkenyl or heterocyclyl;

$R_8$  and  $R_9$  each independently represent hydrogen, alkyl, alkenyl,  $-(CH_2)_m-R_7$ ,  $-C(=O)-alkyl$ ,  $-C(=O)-alkenyl$ ,  $-C(=O)-alkynyl$ , or  $-C(=O)-(CH_2)_m-R_7$ .

or  $R_8$  and  $R_9$  taken together with the N atom to which they are attached complete a heterocyclic  
ring having from 4 to 8 atoms in the ring structure;

$R_{50}$  represents O or S;

$R_{51}$  represents  $N_3$ , SH,  $NH_2$ ,  $NO_2$  or  $OR'_7$ ;

$R_{52}$  represents hydrogen, a lower alkyl, an amine,  $OR'_7$ , or a pharmaceutically acceptable salt,  
or  $R_{51}$  and  $R_{52}$  taken together with the phosphorous atom to which they are attached  
complete a heterocyclic ring having from 5 to 8 atoms in the ring structure;

$Y_1$  and  $Y_2$  can independently or together be a group capable of being hydrolyzed to a hydroxyl  
group, or cyclic derivatives where  $Y_1$  and  $Y_2$  are connected via a ring having from 5 to 8  
atoms in the ring structure;

$X_1$  represents a halogen;

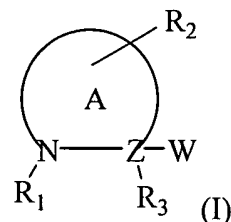
$X_2$  and  $X_3$  each represent a hydrogen or a halogen;

$m$  is zero or an integer in the range of 1 to 8; and  $n$  is an integer in the range of 1 to 8.

3. (Currently Amended) ~~A-The method of claim 2, wherein said for modifying glucose metabolism of an animal, comprising administering to the animal a composition including one or more protease inhibitors which inhibit the proteolysis of glucagon-like peptide 1 (GLP-1) and~~

accordingly increase the plasma half-life of GLP-1 in the animal, wherein the inhibitor is represented by Formula I

4. (Currently Amended) A method for treating Type II diabetes, comprising administering to an animal a composition including one or more inhibitors of dipeptidylpeptidase IV (DPIV) represented by Formula I:

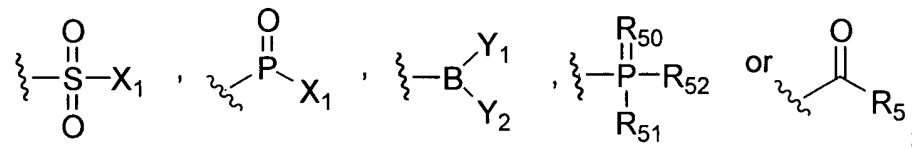


wherein

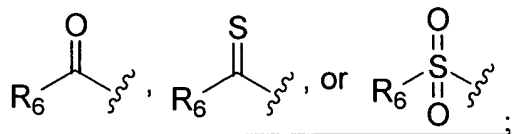
A represents a 4-8 membered heterocycle including the N and a C $\alpha$  carbon;

Z represents C or N;

W represents -CH=NR<sub>5</sub>,



R<sub>1</sub> represents a C-terminally linked amino acid residue or amino acid analog, or a C- terminally linked peptide or peptide analog, or an amino-protecting group, or



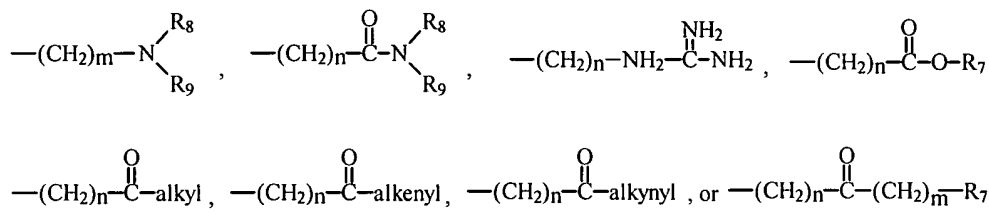
R<sub>2</sub> is absent or represents one or more substitutions to the ring A, each of which can

independently be a halogen, a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl, a thiocarbonyl, an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido, -(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-OH, -(CH<sub>2</sub>)<sub>m</sub>-O-lower alkyl, -(CH<sub>2</sub>)<sub>m</sub>-O-lower alkenyl, -(CH<sub>2</sub>)<sub>n</sub>-O-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-SH, -(CH<sub>2</sub>)<sub>m</sub>-S-lower alkyl, -(CH<sub>2</sub>)<sub>m</sub>-S-lower alkenyl, or -(CH<sub>2</sub>)<sub>n</sub>-S-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>;

if Z is N,  $R_3$  represents hydrogen, if Z is C,  $R_3$  represents hydrogen or a halogen, a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl, a thiocarbonyl, an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido,  $-(CH_2)_m-R_7$ ,  $-(CH_2)_m-OH$ ,  $-(CH_2)_m-O$ -lower alkyl,  $-(CH_2)_m-O$ -lower alkenyl,  $-(CH_2)_n-O-(CH_2)_m-R_7$ ,  $-(CH_2)_m-SH$ ,  $-(CH_2)_m-S$ -lower alkyl,  $-(CH_2)_m-S$ -lower alkenyl, or  $-(CH_2)_n-S-(CH_2)_m-R_7$ ;

$R_5$  represents a hydrogen, an alkyl, an alkenyl, an alkynyl,  $-C(X_1)(X_2)X_3$ ,  $-(CH_2)_m-R_7$ ,  $-(CH_2)_n-OH$ ,  $-(CH_2)_n-O$ -alkyl,  $-(CH_2)_n-O$ -alkenyl,  $-(CH_2)_n-O$ -alkynyl,  $-(CH_2)_n-O-(CH_2)_m-R_7$ ,  $-(CH_2)_n-SH$ ,  $-(CH_2)_n-S$ -alkyl,  $-(CH_2)_n-S$ -alkenyl,  $-(CH_2)_n-S$ -alkynyl,  $-(CH_2)_n-S-(CH_2)_m-R_7$ ,  $-C(O)C(O)NH_2$ , or  $-C(O)C(O)OR'$ ;

$R_6$  represents hydrogen, a halogen, an alkyl, an alkenyl, an alkynyl, an aryl,  $-(CH_2)_m-R_7$ ,  $-(CH_2)_m-OH$ ,  $-(CH_2)_m-O$ -alkyl,  $-(CH_2)_m-O$ -alkenyl,  $-(CH_2)_m-O$ -alkynyl,  $-(CH_2)_m-O-(CH_2)_m-R_7$ ,  $-(CH_2)_m-SH$ ,  $-(CH_2)_m-S$ -alkyl,  $-(CH_2)_m-S$ -alkenyl,  $-(CH_2)_m-S$ -alkynyl, or  $-(CH_2)_m-S-(CH_2)_m-R_7$ ;



$R_7$  represents, for each occurrence, a substituted or unsubstituted aryl, aralkyl, cycloalkyl, cycloalkenyl, or heterocycle;

$R'_7$  represents, for each occurrence, hydrogen, or a substituted or unsubstituted alkyl, alkenyl, aryl, aralkyl, cycloalkyl, cycloalkenyl or heterocycle;

$R_8$  and  $R_9$  each independently represent hydrogen, alkyl, alkenyl,  $-(CH_2)_m-R_7$ ,  $-C(=O)$ -alkyl,  $-C(=O)$ -alkenyl,  $-C(=O)$ -alkynyl, or  $-C(=O)-(CH_2)_m-R_7$ ;

or  $R_8$  and  $R_9$  taken together with the N atom to which they are attached complete a heterocyclic ring having from 4 to 8 atoms in the ring structure;

$R_{50}$  represents O or S;

R<sub>51</sub> represents N<sub>3</sub>, SH, NH<sub>2</sub>, NO<sub>2</sub> or OR'<sub>7</sub>;

R<sub>52</sub> represents hydrogen, a lower alkyl, an amine, OR'<sub>7</sub>, or a pharmaceutically acceptable salt, or R<sub>51</sub> and R<sub>52</sub> taken together with the phosphorous atom to which they are attached complete a heterocyclic ring having from 5 to 8 atoms in the ring structure;

Y<sub>1</sub> and Y<sub>2</sub> can independently or together be a group capable of being hydrolyzed to a hydroxyl group, or cyclic derivatives where Y<sub>1</sub> and Y<sub>2</sub> are connected via a ring having from 5 to 8 atoms in the ring structure;

X<sub>1</sub> represents a halogen;

X<sub>2</sub> and X<sub>3</sub> each represent a hydrogen or a halogen;

m is zero or an integer in the range of 1 to 8; and n is an integer in the range of 1 to 8.

5. (Currently Amended) The method of claim 1 or 2, wherein the ~~dipeptidylpeptidase is~~ DPIV<sub>animal</sub> is a mammal.

6. (Currently Amended) The method of claim ~~35~~, wherein the ~~protease inhibitor is an~~ inhibitor of DPIV<sub>mammal</sub> is a human.

7. (Previously Amended) The method of claim 2 or 3, wherein administering the inhibitor reduces one or more of insulin resistance, glucose intolerance, hyperglycemia, hyperinsulinemia, obesity, hyperlipidemia, or hyperlipoproteinemia.

8. (Previously Amended) The method of claim 1, 2, 3 or 4, wherein the inhibitor has an EC<sub>50</sub> for modification of glucose metabolism which is at least one order of magnitude less than its EC<sub>50</sub> for immunosuppression.

9. (Currently Amended) The method of claim 1, 2, 3 or 4, wherein the inhibitor has an EC<sub>50</sub> for inhibition of glucose intolerance in the nanomolar or less range.

10. (Currently Amended) The method of claim 8, wherein the inhibitor has an EC<sub>50</sub> for immunosuppression in the ~~μM~~ micromolar or greater range.

11. (Previously Amended) The method of claim 4, 5-or 6, wherein the inhibitor has a  $K_i$  for DPIV inhibition of 1.0 nM or less.

12. (Previously Amended) The method of claim 1, 2, 3 or 4, wherein the inhibitor is peptidomimetic of a peptide selected from Pro-Pro, Ala-Pro, and (D)-Ala-(L)-Ala.

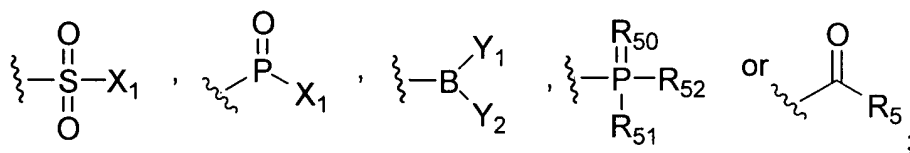
13. (Previously Amended) The method of claim 1, 2, 3 or 4, wherein the inhibitor has a molecular weight less than 7500 amu.

14. (Previously Amended) The method of claim 1, 2, 3 or 4, wherein the inhibitor is administered orally.

15. (Cancelled)

16. (Currently Amended) The method of claim 1, 2, 3, or 4, wherein

W represents  $-\text{CH}=\text{NR}_5$ ,



$R_5$  represents H, an alkyl, an alkenyl, an alkynyl,  $-\text{C}(\text{X}_1)(\text{X}_2)\text{X}_3$ ,  $-(\text{CH}_2)_m\text{-R}_7$ ,  $-(\text{CH}_2)_n\text{-OH}$ ,  $-(\text{CH}_2)_n\text{-O-alkyl}$ ,  $-(\text{CH}_2)_n\text{-O-alkenyl}$ ,  $-(\text{CH}_2)_n\text{-O-alkynyl}$ ,  $-(\text{CH}_2)_n\text{-O}-(\text{CH}_2)_m\text{-R}_7$ ,  $-(\text{CH}_2)_n\text{-SH}$ ,  $-(\text{CH}_2)_n\text{-S-alkyl}$ ,  $-(\text{CH}_2)_n\text{-S-alkenyl}$ ,  $-(\text{CH}_2)_n\text{-S-alkynyl}$ ,  $-(\text{CH}_2)_n\text{-S}-(\text{CH}_2)_m\text{-R}_7$ ,  $-\text{C}(\text{O})\text{C}(\text{O})\text{NH}_2$ , or  $-\text{C}(\text{O})\text{C}(\text{O})\text{OR}'_7$ ;

$R_7$  represents, for each occurrence, a substituted or unsubstituted aryl, aralkyl, cycloalkyl, cycloalkenyl or heterocyclyl;

$R'_7$  represents, for each occurrence, hydrogen, or a substituted or unsubstituted alkyl, alkenyl, aryl, aralkyl, cycloalkyl, cycloalkenyl, or heterocycle;

Y<sub>1</sub> and Y<sub>2</sub> can independently or together be OH, or a group capable of being hydrolyzed to a hydroxyl group, ~~including or~~ cyclic derivatives where Y<sub>1</sub> and Y<sub>2</sub> are connected via a ring having from 5 to 8 atoms in the ring structure;

R<sub>50</sub> represents O or S;

R<sub>51</sub> represents N<sub>3</sub>, SH, NH<sub>2</sub>, NO<sub>2</sub> or OR'<sub>7</sub>;

R<sub>52</sub> represents hydrogen, a lower alkyl, an amine, OR'<sub>7</sub>, or a pharmaceutically acceptable salt, or R<sub>51</sub> and R<sub>52</sub> taken together with the phosphorous atom to which they are attached complete a heterocyclic ring having from 5 to 8 atoms in the ring structure;

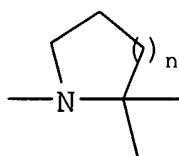
X<sub>1</sub> represents a halogen;

X<sub>2</sub> and X<sub>3</sub> each represent a hydrogen or a halogen;

m is zero or an integer in the range of 1 to 8; and

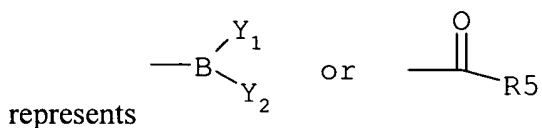
n is an integer in the range of 1 to 8.

17. (Previously Amended) The method of claim 16, wherein the ring A is represented by the formula:

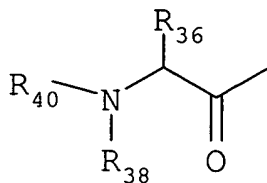


wherein n is an integer of 1 or 2.

18. (Previously Amended) The method of claim 16, wherein W



19. (Original) The method of claim 16, wherein R<sub>1</sub> represents



$R_{36}$  is a small hydrophobic group and  $R_{38}$  is hydrogen, or,  $R_{36}$  and  $R_{38}$  together form a 4-7 membered heterocycle including the N and the  $C\alpha$  carbon, as defined for A above; and

$R_{40}$  represents a C-terminally linked amino acid residue or amino acid analog, or a C-terminally linked peptide or peptide analog, or an amino-protecting group.

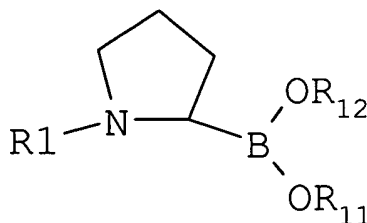
20. (Previously Amended) The method of claim 16, wherein  $R_2$  is absent, or represents a small hydrophobic group.

21. (Previously Amended) The method of claim 16, wherein  $R_3$  is a hydrogen, or a small hydrophobic group.

22. (Previously Amended) The method of claim 16, wherein  $R_5$  is a hydrogen, or a halogenated lower alkyl.

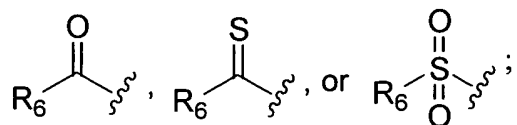
23. (Previously Amended) The method of claim 16, wherein  $X_1$  is a fluorine, and  $X_2$  and  $X_3$ , if halogens, are fluorine.

24. (Currently Amended) The method of claim 16, wherein the inhibitor is represented by the general formula:



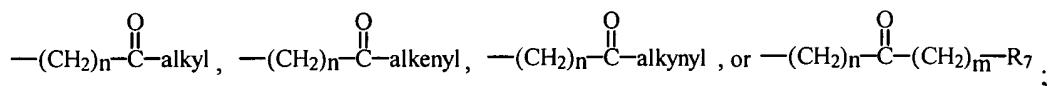
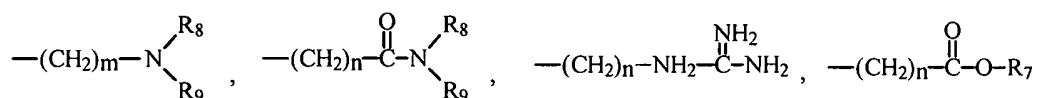
wherein

$R_1$  represents a C-terminally linked amino acid residue or amino acid analog, or a C-terminally linked peptide or peptide analog, or an amino protecting group, or



$R_6$  represents hydrogen, a halogen, an alkyl, an alkenyl, an alkynyl, an aryl,  $-(CH_2)_m-R_7$ , -

$(CH_2)_m-OH$ ,  $-(CH_2)_m-O\text{-alkyl}$ ,  $-(CH_2)_m-O\text{-alkenyl}$ ,  $-(CH_2)_m-O\text{-alkynyl}$ ,  $-(CH_2)_m-O\text{-}$   
 $(CH_2)_m-R_7$ ,  $-(CH_2)_m-SH$ ,  $-(CH_2)_m-S\text{-alkyl}$ ,  $-(CH_2)_m-S\text{-alkenyl}$ ,  $-(CH_2)_m-S\text{-alkynyl}$ , -  
 $(CH_2)_m-S\text{-}(CH_2)_m-R_7$ ,



$R_7$  represents an aryl, a cycloalkyl, a cycloalkenyl, or a heterocycle;

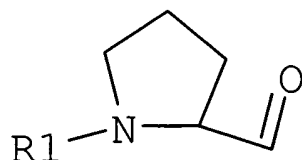
$R_8$  and  $R_9$  each independently represent hydrogen, alkyl, alkenyl,  $-(CH_2)_m-R_7$ ,  $-C(=O)\text{-alkyl}$ , -  
 $C(=O)\text{-alkenyl}$ ,  $-C(=O)\text{-alkynyl}$ , or  $-C(=O)\text{-(CH}_2)_m\text{-R}_7$ ,

or  $R_8$  and  $R_9$  taken together with the N atom to which they are attached complete a heterocyclic  
ring having from 4 to 8 atoms in the ring structure;

$R_{11}$  and  $R_{12}$  each independently represent hydrogen, an alkyl, or a pharmaceutically acceptable  
salt, or  $R_{11}$  and  $R_{12}$  taken together with the O-B-O atoms to which they are attached  
complete a heterocyclic ring having from 5 to 8 atoms in the ring structure;

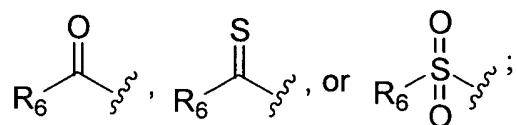
$m$  is zero or an integer in the range of 1 to 8; and  $n$  is an integer in the range of 1 to 8.

25. (Currently Amended) The method of claim 16, wherein the inhibitor is represented by the  
general formula

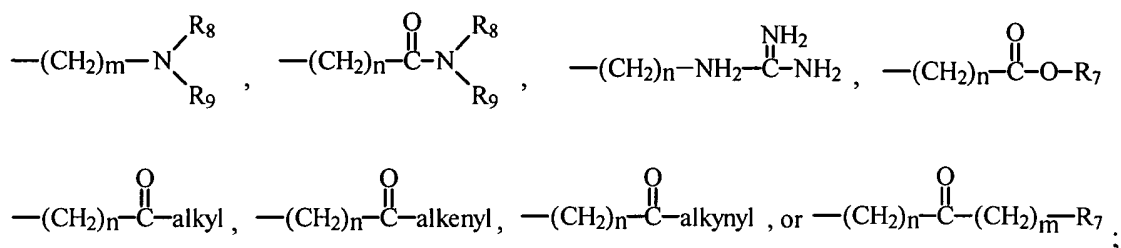


wherein

$R_1$  represents a C-terminally linked amino acid residue or amino acid analog, or a C-terminally  
linked peptide or peptide analog, or an amino protecting group, or



$R_6$  represents hydrogen, a halogen, an alkyl, an alkenyl, an alkynyl, an aryl,  $-(CH_2)_m-R_7$ ,  $-(CH_2)_m-OH$ ,  $-(CH_2)_m-O\text{-alkyl}$ ,  $-(CH_2)_m-O\text{-alkenyl}$ ,  $-(CH_2)_m-O\text{-alkynyl}$ ,  $-(CH_2)_m-O\text{-(CH}_2)_m-R_7$ ,  $-(CH_2)_m-SH$ ,  $-(CH_2)_m-S\text{-alkyl}$ ,  $-(CH_2)_m-S\text{-alkenyl}$ ,  $-(CH_2)_m-S\text{-alkynyl}$ ,  $-(CH_2)_m-S\text{-(CH}_2)_m-R_7$ ,



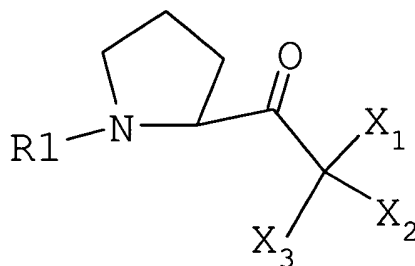
$R_7$  represents an aryl, a cycloalkyl, a cycloalkenyl, or a heterocycle;

$R_8$  and  $R_9$  each independently represent hydrogen, alkyl, alkenyl,  $-(CH_2)_m-R_7$ ,  $-C(=O)\text{-alkyl}$ ,  $-C(=O)\text{-alkenyl}$ ,  $-C(=O)\text{-alkynyl}$ , or  $-C(=O)\text{-(CH}_2)_m-R_7$ ,

or  $R_8$  and  $R_9$  taken together with the N atom to which they are attached complete a heterocyclic ring having from 4 to 8 atoms in the ring structure;

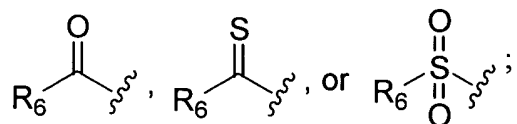
$m$  is zero or an integer in the range of 1 to 8; and  $n$  is an integer in the range of 1 to 8.

26. (Currently Amended) The method of claim 16, wherein the inhibitor is represented by the general formula:

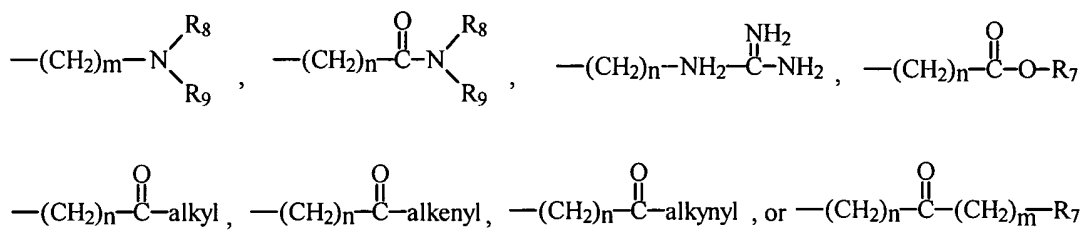


wherein

R<sub>1</sub> represents a C-terminally linked amino acid residue or amino acid analog, or a C-terminally linked peptide or peptide analog, or an amino protecting group, or



R<sub>6</sub> represents hydrogen, a halogen, an alkyl, an alkenyl, an alkynyl, an aryl, -(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-OH, -(CH<sub>2</sub>)<sub>m</sub>-O-alkyl, -(CH<sub>2</sub>)<sub>m</sub>-O-alkenyl, -(CH<sub>2</sub>)<sub>m</sub>-O-alkynyl, -(CH<sub>2</sub>)<sub>m</sub>-O-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-SH, -(CH<sub>2</sub>)<sub>m</sub>-S-alkyl, -(CH<sub>2</sub>)<sub>m</sub>-S-alkenyl, -(CH<sub>2</sub>)<sub>m</sub>-S-alkynyl, -(CH<sub>2</sub>)<sub>m</sub>-S-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>,



R<sub>7</sub> represents an aryl, a cycloalkyl, a cycloalkenyl, or a heterocycle;

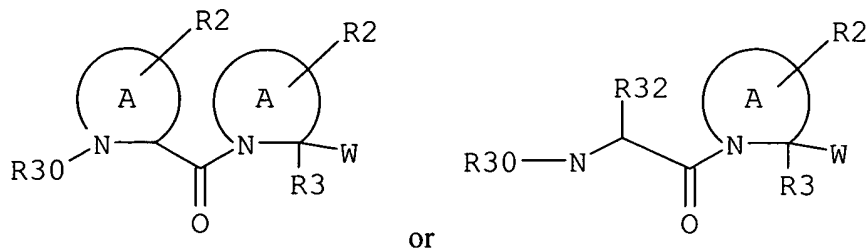
R<sub>8</sub> and R<sub>9</sub> each independently represent hydrogen, alkyl, alkenyl, -(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -C(=O)-alkyl, -C(=O)-alkenyl, -C(=O)-alkynyl, or -C(=O)-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>,

or R<sub>8</sub> and R<sub>9</sub> taken together with the N atom to which they are attached complete a heterocyclic ring having from 4 to 8 atoms in the ring structure;

X<sub>1</sub>, X<sub>2</sub> and X<sub>3</sub> each represent a hydrogen or a halogen;

m is zero or an integer in the range of 1 to 8; and n is an integer in the range of 1 to 8.

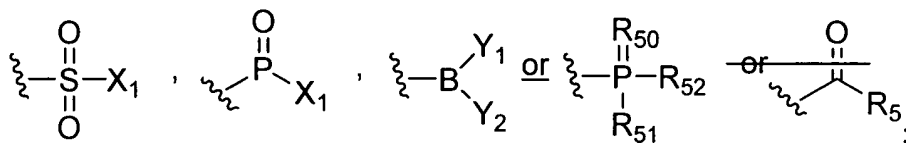
27. (Currently Amended) The method of claim 16, wherein the inhibitor is represented by the general formula:



wherein

A represent a 4-8 membered heterocycle including an N and a C $\alpha$  carbon;

W represents,  $\text{---CH=NR}_5$ ;



R<sub>2</sub> is absent or represents one or more substitutions to the ring A, each of which can independently be a halogen, a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl, a thiocarbonyl, an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido,  $\text{---(CH}_2\text{)}_m\text{---R}_7$ ,  $\text{---(CH}_2\text{)}_m\text{---OH}$ ,  $\text{---(CH}_2\text{)}_m\text{---O---lower alkyl}$ ,  $\text{---(CH}_2\text{)}_m\text{---O---lower alkenyl}$ ,  $\text{---(CH}_2\text{)}_n\text{---O---(CH}_2\text{)}_m\text{---R}_7$ ,  $\text{---(CH}_2\text{)}_m\text{---SH}$ ,  $\text{---(CH}_2\text{)}_m\text{---S---lower alkyl}$ ,  $\text{---(CH}_2\text{)}_m\text{---S---lower alkenyl}$ , or  $\text{---(CH}_2\text{)}_n\text{---S---(CH}_2\text{)}_m\text{---R}_7$ ;

R<sub>3</sub> represents a hydrogen or a halogen, a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl, a thiocarbonyl, an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido,  $\text{---(CH}_2\text{)}_m\text{---R}_7$ ,  $\text{---(CH}_2\text{)}_m\text{---OH}$ ,  $\text{---(CH}_2\text{)}_m\text{---O---lower alkyl}$ ,  $\text{---(CH}_2\text{)}_m\text{---O---lower alkenyl}$ ,  $\text{---(CH}_2\text{)}_n\text{---O---(CH}_2\text{)}_m\text{---R}_7$ ,  $\text{---(CH}_2\text{)}_m\text{---SH}$ ,  $\text{---(CH}_2\text{)}_m\text{---S---lower alkyl}$ ,  $\text{---(CH}_2\text{)}_m\text{---S---lower alkenyl}$ , or  $\text{---(CH}_2\text{)}_n\text{---S---(CH}_2\text{)}_m\text{---R}_7$ ;

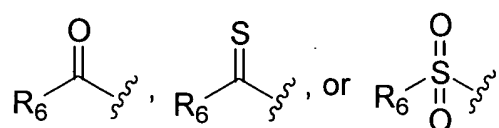
R<sub>5</sub> represents a hydrogen, an alkyl, an alkenyl, an alkynyl,  $\text{---C(X}_1\text{)(X}_2\text{)X}_3$ ,  $\text{---(CH}_2\text{)}_m\text{---R}_7$ ,  $\text{---(CH}_2\text{)}_n\text{---OH}$ ,  $\text{---(CH}_2\text{)}_n\text{---O---alkyl}$ ,  $\text{---(CH}_2\text{)}_n\text{---O---alkenyl}$ ,  $\text{---(CH}_2\text{)}_n\text{---O---alkynyl}$ ,  $\text{---(CH}_2\text{)}_n\text{---O---(CH}_2\text{)}_m\text{---R}_7$ ,  $\text{---(CH}_2\text{)}_n\text{---SH}$ ,  $\text{---(CH}_2\text{)}_n\text{---S---alkyl}$ ,  $\text{---(CH}_2\text{)}_n\text{---S---alkenyl}$ ,  $\text{---(CH}_2\text{)}_n\text{---S---alkynyl}$ ,  $\text{---(CH}_2\text{)}_n\text{---S---(CH}_2\text{)}_m\text{---R}_7$ ,  $\text{---C(O)C(O)NH}_2$ , or  $\text{---C(O)C(O)OR}'_7$ ;

R<sub>7</sub> represents, for each occurrence, a substituted or unsubstituted aryl, aralkyl, cycloalkyl, cycloalkenyl or heterocyclyl;

R'<sub>7</sub> represents, for each occurrence, hydrogen, or a substituted or unsubstituted alkyl, alkenyl, aryl, aralkyl, cycloalkyl, cycloalkenyl or heterocyclyl;

R<sub>32</sub> is a small hydrophobic group;

R<sub>30</sub> represents a C-terminally linked amino acid residue or amino acid analog, or a C-terminally linked peptide or peptide analog, or an amino-protecting group; or



R<sub>50</sub> represents O or S;

R<sub>51</sub> represents N<sub>3</sub>, SH, NH<sub>2</sub>, NO<sub>2</sub> or OR'<sub>7</sub>;

R<sub>52</sub> represents hydrogen, a lower alkyl, an amine, OR'<sub>7</sub>, or a pharmaceutically acceptable salt, or R<sub>51</sub> and R<sub>52</sub> taken together with the phosphorous atom to which they are attached complete a heterocyclic ring having from 5 to 8 atoms in the ring structure;

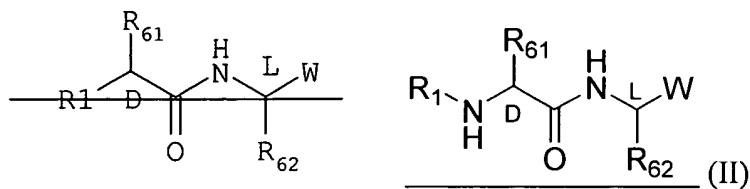
X<sub>1</sub> represents a halogen;

X<sub>2</sub> and X<sub>3</sub> each represent a hydrogen or a halogen;

m is zero or an integer in the range of 1 to 8; and

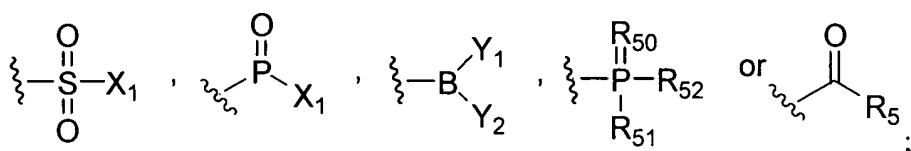
n is an integer in the range of 1 to 8.

28. (Currently Amended) A method for modifying, in an animal, metabolism of glucagon-like peptide 1 (GLP-1), comprising administering to the animal a composition including one or more inhibitors of a dipeptidylpeptidase which inactivates GLP-1,, wherein the inhibitor is represented by Formula II:

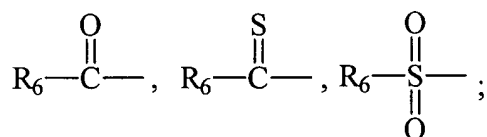


wherein

W represents a functional group which reacts with an active site residue of the targeted protease, selected from -CN, -CH=NR<sub>5</sub>,



R<sub>1</sub> represents a C-terminally linked amino acid residue or amino acid analog, or a C-terminally linked peptide or peptide analog, or an amino-protecting group, or



R<sub>3</sub> represents hydrogen or a halogen, a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl, a thiocarbonyl, an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido, -(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-OH, -(CH<sub>2</sub>)<sub>m</sub>-O-lower alkyl, -(CH<sub>2</sub>)<sub>m</sub>-O-lower alkenyl, -(CH<sub>2</sub>)<sub>n</sub>-O-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-SH, -(CH<sub>2</sub>)<sub>m</sub>-S-lower alkyl, -(CH<sub>2</sub>)<sub>m</sub>-S-lower alkenyl, or -(CH<sub>2</sub>)<sub>n</sub>-S-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>;

R<sub>5</sub> represents H, an alkyl, an alkenyl, an alkynyl, -C(X<sub>1</sub>)(X<sub>2</sub>)X<sub>3</sub>, -(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>n</sub>-OH, -(CH<sub>2</sub>)<sub>n</sub>-O-alkyl, -(CH<sub>2</sub>)<sub>n</sub>-O-alkenyl, -(CH<sub>2</sub>)<sub>n</sub>-O-alkynyl, -(CH<sub>2</sub>)<sub>n</sub>-O-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>n</sub>-SH, -(CH<sub>2</sub>)<sub>n</sub>-S-alkyl, -(CH<sub>2</sub>)<sub>n</sub>-S-alkenyl, -(CH<sub>2</sub>)<sub>n</sub>-S-alkynyl, -(CH<sub>2</sub>)<sub>n</sub>-S-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -C(O)C(O)NH<sub>2</sub>, or -C(O)C(O)OR'<sub>7</sub>;

R<sub>6</sub> represents hydrogen, a halogen, an alkyl, an alkenyl, an alkynyl, an aryl, -(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-OH, -(CH<sub>2</sub>)<sub>m</sub>-O-alkyl, -(CH<sub>2</sub>)<sub>m</sub>-O-alkenyl, -(CH<sub>2</sub>)<sub>m</sub>-O-alkynyl, -(CH<sub>2</sub>)<sub>m</sub>-O-

$(\text{CH}_2)_m\text{-R}_7$ ,  $-(\text{CH}_2)_m\text{-SH}$ ,  $-(\text{CH}_2)_m\text{-S-alkyl}$ ,  $-(\text{CH}_2)_m\text{-S-alkenyl}$ ,  $-(\text{CH}_2)_m\text{-S-alkynyl}$ ,  
or  $-(\text{CH}_2)_m\text{-S-}(\text{CH}_2)_m\text{-R}_7$ ;

$\text{R}_7$  represents, for each occurrence, a substituted or unsubstituted aryl, aralkyl, cycloalkyl,  
cycloalkenyl, or heterocycle;

$\text{R}'_7$  represents, for each occurrence, hydrogen, or a substituted or unsubstituted alkyl, alkenyl,  
aryl, aralkyl, cycloalkyl, cycloalkenyl, or heterocycle;

$\text{R}_{61}$  and  $\text{R}_{62}$ , independently, represent small hydrophobic groups;

$\text{Y}_1$  and  $\text{Y}_2$  can independently or together be OH, or a group capable of being hydrolyzed to a  
hydroxyl group, ~~including~~ or cyclic derivatives where  $\text{Y}_1$  and  $\text{Y}_2$  are connected via a ring  
having from 5 to 8 atoms in the ring structure ;

$\text{R}_{50}$  represents O or S;

$\text{R}_{51}$  represents  $\text{N}_3$ , SH,  $\text{NH}_2$ ,  $\text{NO}_2$  or  $\text{OR}'_7$ ;

$\text{R}_{52}$  represents hydrogen, a lower alkyl, an amine,  $\text{OR}'_7$ , or a pharmaceutically acceptable salt,  
or  $\text{R}_{51}$  and  $\text{R}_{52}$  taken together with the phosphorous atom to which they are attached  
complete a heterocyclic ring having from 5 to 8 atoms in the ring structure;

$\text{X}_1$  represents a halogen;

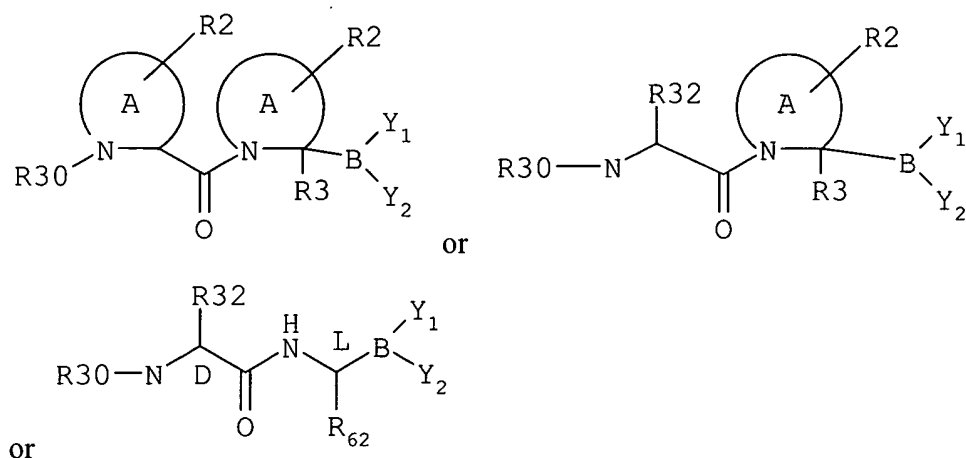
$\text{X}_2$  and  $\text{X}_3$  each represent a hydrogen or a halogen;

$m$  is zero or an integer in the range of 1 to 8; and  $n$  is an integer in the range of 1 to 8.

29. (Currently Amended) A method for ~~modifying~~modifying, in an animal, metabolism of  
peptide hormone, comprising administering to the animal a composition including one or more  
boronyl peptidomimetic inhibitors of dipeptidylpeptidase IV (DPIV) in an amount sufficient to  
increase the plasma half-life of a peptide hormone, which peptide hormone is selected from ~~the~~  
~~group consisting of~~ glucagon-like peptide 2 (GLP-2), growth hormone-releasing factor (GHRF),  
vasoactive intestinal peptide (VIP), peptide histidine isoleucine (PHI), pituitary adenylate cyclase  
activating peptide (PACAP), gastric inhibitory peptide (GIP), helodermin, Peptide YY and  
neuropeptide Y.

30. (Currently Amended) A method for modifying glucose metabolism of an animal, comprising administering to the animal a composition including a boronyl peptidomimetic of a peptide selected from Pro-Pro, Ala-Pro, and (D)-Ala-(L)-Ala.

31. (Currently Amended) The method of claim ~~34~~30, wherein the boronyl peptidomimetic is represented in the general formula:



or

wherein

each A independently represents a 4-8 membered heterocycle including the N and a C $\alpha$  carbon;

R<sub>2</sub> is absent or represents one or more substitutions to the ring A, each of which can

independently be a halogen, a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl, a thiocarbonyl, an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido, -(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-OH, -(CH<sub>2</sub>)<sub>m</sub>-O-lower alkyl, -(CH<sub>2</sub>)<sub>m</sub>-O-lower alkenyl, -(CH<sub>2</sub>)<sub>n</sub>-O-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-SH, -(CH<sub>2</sub>)<sub>m</sub>-S-lower alkyl, -(CH<sub>2</sub>)<sub>m</sub>-S-lower alkenyl, or -(CH<sub>2</sub>)<sub>n</sub>-S-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>;

R<sub>3</sub> represents hydrogen or a halogen, a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl,

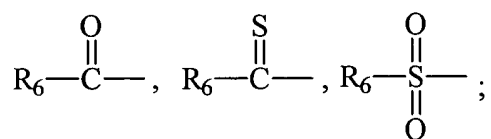
a thiocarbonyl, an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido, -(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-OH, -(CH<sub>2</sub>)<sub>m</sub>-O-lower alkyl, -(CH<sub>2</sub>)<sub>m</sub>-O-lower alkenyl, -(CH<sub>2</sub>)<sub>n</sub>-O-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-SH, -(CH<sub>2</sub>)<sub>m</sub>-S-lower alkyl, -(CH<sub>2</sub>)<sub>m</sub>-S-lower alkenyl, or -(CH<sub>2</sub>)<sub>n</sub>-S-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>;

~~R<sub>5</sub> represents H, an alkyl, an alkenyl, an alkynyl, C(X<sub>1</sub>)(X<sub>2</sub>)X<sub>3</sub>, (CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, (CH<sub>2</sub>)<sub>n</sub>-OH, (CH<sub>2</sub>)<sub>n</sub>-O-alkyl, (CH<sub>2</sub>)<sub>n</sub>-O-alkenyl, (CH<sub>2</sub>)<sub>n</sub>-O-alkynyl, (CH<sub>2</sub>)<sub>n</sub>-O-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, (CH<sub>2</sub>)<sub>n</sub>-SH, (CH<sub>2</sub>)<sub>n</sub>-S-alkyl, (CH<sub>2</sub>)<sub>n</sub>-S-alkenyl, (CH<sub>2</sub>)<sub>n</sub>-S-alkynyl, (CH<sub>2</sub>)<sub>n</sub>-S-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, C(O)C(O)NH<sub>2</sub>, or C(O)C(O)OR'<sub>7</sub>;~~

R<sub>6</sub> represents hydrogen, a halogen, an alkyl, an alkenyl, an alkynyl, an aryl, -(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-OH, -(CH<sub>2</sub>)<sub>m</sub>-O-alkyl, -(CH<sub>2</sub>)<sub>m</sub>-O-alkenyl, -(CH<sub>2</sub>)<sub>m</sub>-O-alkynyl, -(CH<sub>2</sub>)<sub>m</sub>-O-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>, -(CH<sub>2</sub>)<sub>m</sub>-SH, -(CH<sub>2</sub>)<sub>m</sub>-S-alkyl, -(CH<sub>2</sub>)<sub>m</sub>-S-alkenyl, -(CH<sub>2</sub>)<sub>m</sub>-S-alkynyl, or -(CH<sub>2</sub>)<sub>m</sub>-S-(CH<sub>2</sub>)<sub>m</sub>-R<sub>7</sub>;

R<sub>7</sub> represents, for each occurrence, a substituted or unsubstituted aryl, aralkyl, cycloalkyl, cycloalkenyl, or heterocycle;

R<sub>30</sub> represents a C-terminally linked amino acid residue or amino acid analog, or a C-terminally linked peptide or peptide analog, or an amino-protecting group, or



R<sub>32</sub> and ~~R<sub>61</sub>~~R<sub>62</sub>, independently, represent small hydrophobic groups;

Y<sub>1</sub> and Y<sub>2</sub> can independently or together be OH, or a group capable of being hydrolyzed to a hydroxyl group, ~~including~~ or cyclic derivatives where Y<sub>1</sub> and Y<sub>2</sub> are connected via a ring having from 5 to 8 atoms in the ring structure ;

m is zero or an integer in the range of 1 to 8; and n is an integer in the range of 1 to 8.

32. (Currently Amended) The method of claim 31, wherein administering the boronyl peptidomimetic reduces one or more of insulin resistance, glucose intolerance, hyperglycemia, hyperinsulinemia, obesity, hyperlipidemia, or hyperlipoproteinemia.

33. (Previously Amended) The method of claim 31, wherein the boronyl peptidomimetic has an EC<sub>50</sub> for modification of glucose metabolism which is at least one order of magnitude less than its EC<sub>50</sub> for immunosuppression.

34. (Previously Amended) The method of claim 31, wherein the boronyl peptidomimetic has an EC<sub>50</sub> for inhibition of glucose tolerance in the nanomolar or less range.
35. (Previously Amended) The method of claim 31, wherein the boronyl peptidomimetic has an EC<sub>50</sub> for immunosuppression in the μM or greater range.
36. (Previously Amended) The method of claim 31, wherein the boronyl peptidomimetic is administered orally.
37. (Currently Amended) A method for modifying glucose metabolism of an animal, comprising administering to the animal a composition comprising a peptidomimetic boronyl inhibitor wherein the peptide to be mimicked is Pro-Pro, Ala-Pro, ~~and~~ or (D)-Ala-(L)-Ala.
38. (New) The method of claim 6, wherein the human is a Type II diabetic.